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Static Electricity Precautions

1. Don't take this motherboard and components out of their original static-proof package until you are ready to install them.
2. While installing, please wear a grounded wrist strap if possible. If you don't have a wrist strap, discharge static electricity by touching the bare metal of the system chassis.
3. Carefully hold this motherboard by its edges. Do not touch those components unless it is absolutely necessary. Put this motherboard on the top of static-protection package with component side facing up while installing.

Pre-Installation Inspection

1. Inspect this motherboard whether there are any damages to components and connectors on the board.
2. If you suspect this motherboard has been damaged, do not connect power to the system. Contact your motherboard vendor about those damages.

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A41G Series, V1.0
July, 2010

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Notice:

1. Owing to Microsoft's certifying schedule is various to every supplier, we might have some drivers not certified yet by Microsoft. Therefore, it might happen under Windows XP that a dialogue box (shown as below) pops out warning you this software has not passed Windows Logo testing to verify its compatibility with Windows XP. Please rest assured that our RD department has already tested and verified these drivers. Just click the "Continue Anyway" button and go ahead the installation.

Hardware Installation
The software you are installing for this hardware:
HSP56 MicroModem
has not passed Windows Logo testing to verify its compatibility with Windows XP. (Tell me why this testing is important.)
Continuing your installation of this software may impair or destabilize the correct operation of your system either immediately or in the future. Microsoft strongly recommends that you stop this installation now and contact the hardware vendor for software that has passed Windows Logo testing.
Continue Anyway
STOP Installation

2. USB 2.0 Driver Limitations:
2-1. The USB 2.0 driver only supports Windows XP and Windows 2000.
2-2. If you connect a USB 2.0 hub to the root hub, plugging USB devices into this hub, the system might not successfully execute certain USB devices' connection because it could not recognize these devices.

Currently, we are working on such limitations' solution. As soon as the olution is done, the updated USB drive will be released to our website: www.pcchips.com for your downloading.

Chapter 1 Introduction

This motherboard is a high performance, enhanced function motherboard that supports socket AM3 for AMD Phenom™ II processor/Athlon II/Sempron processors for high-end business or personal desktop markets.

The motherboard incorporates the AMD 740G (RS740) Northbridge (NB) and SB700 Southbridge (SB) chipsets. The Northbridge supports the HyperTransport™ 1.0 interface. It supports two DDR3 slots with maximum memory size of 8 GB. One PCI Express x16 slot, intended for Graphics Interface, is fully compliant to the PCI Express Base Specification Revision 1.1.

The SB700 Southbridge supports two PCI slots which are PCI 2.3 compliant. In addition, one PCI Express x1 slot is supported, fully compliant to the PCI Express Base Specification, Revision 1.1. It integrates USB 2.0 interface, supporting up to eight functional ports (four USB ports and two USB 2.0 headers support additional four USB ports). One onboard IDE connector supports two IDE devices in Ultra ATA 133/100/66/33 modes. The Southbridge integrates a Serial ATA host controller, supporting four SATA ports with maximum transfer rate up to 3.0 Gb/s each. It provides AMD SATA RAID configuration with RAID 0, 1 and 10 modes supported.

There is an advanced full set of I/O ports in the rear panel, including PS/2 mouse and keyboard connectors, one VGA port, one optional DVI port, four USB ports, one LAN port and audio jacks for microphone, line-in and line-out.

This motherboard is a Micro ATX size motherboard and has power connectors for an ATX power supply.

Key Features

The key features of this motherboard include:

Socket-AM2 Processor Support

- Supports AM3 for AMD Phenom™ II processor/Athlon II/Sempron processors

Chipset

There are AMD740G Northbridge and SB700 Southbridge in this chipset in accordance with an innovative and scalable architecture with proven reliability and performance.

- One x4 A-Link Express II interface (PCI Express 1.1 compliant) for connection to an AMD Southbridge
- Supports one PCI Express x16 for Graphics Interface, fully compliant to the PCI Express Base Specification revision 1.1
- Fully supports ACPI states S0, S1,S2, S3, S4, and S5
- Single chip solution in 80nm, 1.2 V CMOS technology
- Compliant with PCI 2.3 specification at 33 MHz
- Supports four Serial ATA devices which speeds up to 3.0 Gb/s
- Integrated USB 2.0 Host Controller supporting up to eight USB 2.0 ports
- Integrated IDE controller supports Ultra ATA 133/100/66/33 modes
- Supports integrated RAID0, RAID1, and RAID 10 (requires use of 4 or more SATA ports) functionalities across all 6 ports

Memory Support

- Two 240-pin DIMM sockets for DDR SDRAM memory modules
- Supports DDR3 1333/1066 memory bus
- Maximum installed memory is 8 GB

Expansion Slots

- One PCI Express x1 slot
- One PCI Express x16 slot
- Two 32-bit PCI slots for PCI 2.3 compliant bus interface

Onboard IDE channels

- Two IDE Connectors
- Supports PIO (Programmable Input/Output) and DMA (Direct Memory Access) modes
- Supports IDE Ultra DMA bus mastering with transfer rates of 133/100/66 MB/sec

Serial ATA

- Four Serial ATA Connectors
- Transfer rate exceeding best ATA (~1.5 Gb/s) with scalability to higher rates
- Low pin count for both host and devices

Audio (VIA VT1705 CODEC)

- 5.1 Channel High Definition Audio Codec
- Exceeds Microsoft Windows Logo Program (WLP) Requirements
- ADCs support 44.1K/48K/88.2K/96K/192KHz sample rate
- Power Support: Digital: 3.3V; Analog: 5.0V

Fast Ethernet LAN (optional)

• Supports PCI Express™ 1.1 • Integrated 10/100/1000 transceiver • Wake-on-LAN and remote wake-up support
• Supports PCI Express™ 1.1 • Integrated 10/100 transceiver • Wake-on-LAN and remote wake-up support

Onboard I/O Ports

- Two PS/2 ports for mouse and keyboard
- One optional DVI port
- One VGA port
- Four back-panel USB2.0 ports
- One LAN port (optional)
- Audio jacks for microphone, line-in and line-out

USB 2.0

- Compliant with Universal Serial Bus Specification Revision 2.0
- Compliant with Intel's Enhanced Host Controller Interface Specification Revision 1.0
- Compliant with Universal Host Controller Interface Specification Revision 1.1
- PCI multi-function device consists of two **UHCI Host Controller** cores for full-/low-speed signaling and one **EHCI Host Controller** core for high-speed signaling
- Root hub consists 4 downstream facing ports with integrated physical layer transceivers shared by **UHCI** and **EHCI** Host Controller, up to eight functional ports
- Support PCI-Bus Power Management Interface Specification release 1.1
- Legacy support for all downstream facing ports

BIOS Firmware

This motherboard uses AMI BIOS that enables users to configure many system features including the following:

- Power management
- Wake-up alarms
- CPU parameters and memory timing
- CPU and memory timing

The firmware can also be used to set parameters for different processor clock speeds.

Dimensions

- Micro ATX form factor of 244 x 210 mm

Note: Hardware specifications and software items are subject to change without notification.

Package Contents

Your motherboard package ships with the following items:

- ❑ The motherboard
- ❑ The User's Guide
- ❑ One diskette drive ribbon cable (optional)
- ❑ One IDE drive ribbon cable
- ❑ The Software support disk

Optional Accessories

You can purchase the following optional accessories for this motherboard.

- ❑ The Extended USB module
- ❑ The CNR v.90 56K Fax/Modem card
- ❑ The Serial ATA cable
- ❑ The Serial ATA power cable

Note: You can purchase your own optional accessories from the third party, but please contact your local vendor on any issues of the specification and compatibility.

Chapter 2 Motherboard Installation

To install this motherboard in a system, please follow these instructions in this chapter:

- Identify the motherboard components
- Install a CPU
- Install one or more system memory modules
- Make sure all jumpers and switches are set correctly
- Install this motherboard in a system chassis (case)
- Connect any extension brackets or cables to headers/connectors on the motherboard
- Install peripheral devices and make the appropriate connections to headers/connectors on the motherboard

Note:

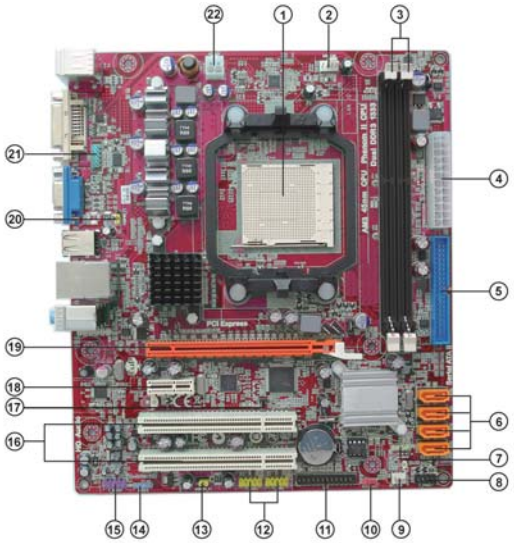
1 Before installing this motherboard, make sure jumper CLR_CMOS is under Normal setting. See this chapter for information about locating CLR_CMOS and the setting options.

2 Never connect power to the system during installation; otherwise, it may damage the motherboard.

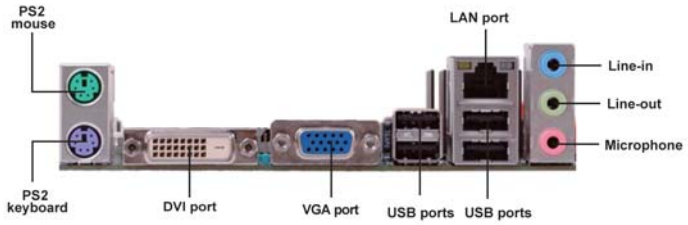
I/O Ports

The illustration below shows a side view of the built-in I/O ports on the motherboard.

Motherboard Components



LABEL	COMPONENTS
1. CPU Socket	Socket AM3 for AMD Phenom™ II/Athlon II/Sempron processors
2. CPU_FAN	CPU cooling fan connector
3. DDR3_1~2	240-pin DDR3 SDRAM slots
4. ATX_POWER	Standard 24-pin ATX power connector
5. IDE	Primary IDE connector
6. SATA1~4	Serial ATA connectors
7. SPK	Speaker header
8. F_PANEL	Front panel switch/LED header
9. SYS_FAN	System cooling fan connector
10. CLR_CMOS	Clear CMOS jumper
11. LPT	Parallel port header
12. F_USB1~2	Front Panel USB headers
13. USBPWR_R1	Rear USB/PS2 power select jumper
14. SPDIFO	SPDIF out header
15. F_AUDIO	Front panel audio header
16. PCI1~2	32-bit add-on card slots
17. CASE	Chassis detect jumper
18. PCIEX1	PCI Express x1 slot
19. PCIEX16	PCI Express x16 slot for graphics interface
20. USBPWR_F1	Front panel USB power select jumper
21. COM	Onboard serial header
22. ATX12V	4-pin +12V power connector



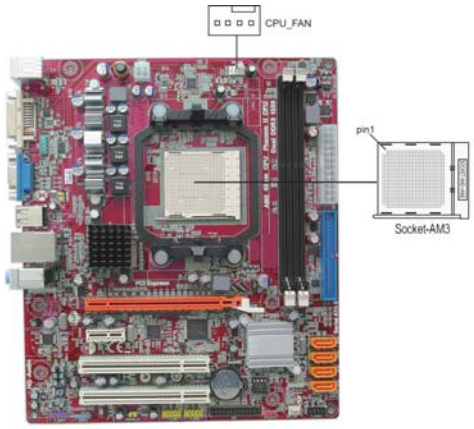
PS/2 Mouse	Use the upper PS/2 port to connect a PS/2 pointing device.
PS/2 Keyboard	Use the lower PS/2 port to connect a PS/2 keyboard.
VGA Port	Use the VGA port to connect VGA devices.
LAN Port	Connect an RJ-45 jack to the LAN port to connect your computer to the Network.
USB Ports	Use the USB ports to connect USB devices.
Audio Ports	Use these three audio jacks to connect audio devices. The first jack is for stereo Line-In signal, the second jack for stereo Line-Out signal, and the third jack for Microphone.

Installing the Processor

This motherboard has a socket AM3 processor socket. When choosing a processor, consider the performance requirements of the system. Performance is based on the processor design, the clock speed and system bus frequency of the processor, and the quantity of internal cache memory and external cache memory.

CPU Installation Procedure

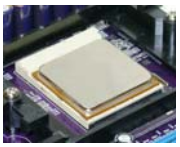
Follow these instructions to install the CPU:



1 Unhook the locking lever of the CPU socket. Pull the locking lever away from the socket and raising it to the upright position.

2 Match the pin1 corner marked as the beveled edge on the CPU with the pin1 corner on the socket. Insert the CPU into the socket. Do not use force.

3 Push the locking lever down and hook it under the latch on the edge of socket.



4 Apply thermal grease to the top of the CPU.

5 Install the cooling fan/heatsink unit onto the CPU, and secure them all onto the socket base.

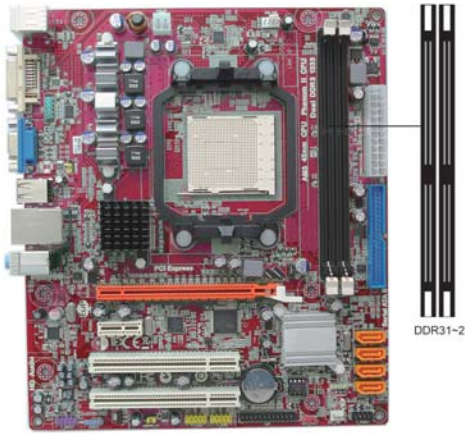
6 Plug the CPU fan power cable into the CPU fan connector (CPU_FAN1) on the motherboard.

Note: To achieve better airflow rates and heat dissipation, we suggest that you use a high quality fan with 4800 rpm at least. CPU fan and heatsink installation procedures may vary with the type of CPU fan/heatsink supplied. The form and size of fan/heatsink may also vary.

Installing Memory Modules

This motherboard accommodates two 240-pin DIMM sockets (Dual Inline Memory Module) for unbuffered **DDR3 1333/1066** memory modules (Double Data Rate SDRAM), and maximum 8 GB installed memory.

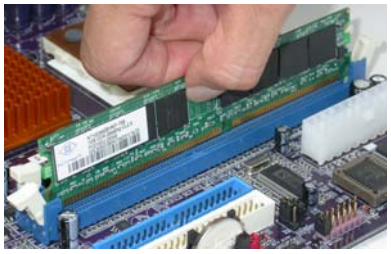
Over its predecessor, DDR3-SDRAM offers greater bandwidth and density in a smaller package along with a reduction in power consumption. In addition, DDR2-SDRAM offers new features and functions that enable a higher clock rate and data rate operations of 1066 MHz and 1333 MHz. DDR3 transfers 64 bits of data twice every clock cycle.



Memory Module Installation Procedure

These modules can be installed with up to 8 GB system memory. Refer to the following to install the memory module.

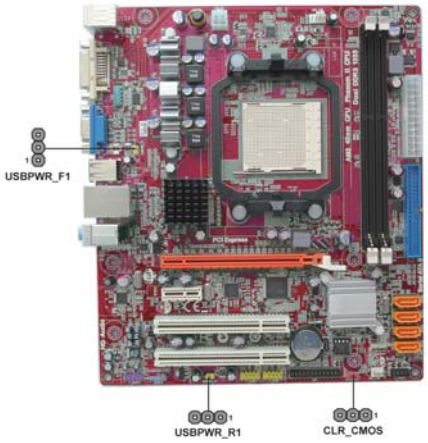
1. Push down the latches on both sides of the DIMM socket.
2. Align the memory module with the socket. There is a notch on the DIMM socket that you can install the DIMM module in the correct direction. Match the cutout on the DIMM module with the notch on the DIMM socket.
3. Install the DIMM module into the socket and press it firmly down until it is seated correctly. The socket latches are levered upwards and latch on to the edges of the DIMM.
4. Install any remaining DIMM modules.



Note for dual-channel DDR2:
1. You CAN NOT use only one DIMM2 for it might cause the system shutdown.
2. You need to use DIMM1 and DIMM2 with the same size of memory modules.

Jumper Settings

Connecting two pins with a jumper cap is SHORT; removing a jumper cap from these pins, OPEN.



CLR_CMOS: Clear CMOS Jumper

Use this jumper to clear the contents of the CMOS memory. You may need to clear the CMOS memory if the settings in the Setup Utility are incorrect and prevent your motherboard from operating. To clear the CMOS memory, disconnect all the power cables from the motherboard and then move the jumper cap into the CLEAR setting for a few seconds.

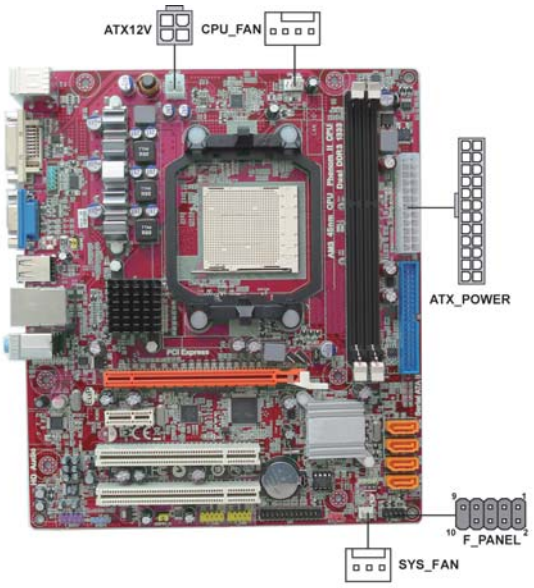
Function	Jumper
Clear CMOS	Short Pins 1-2
NORMAL	Short Pins 2-3

Note: To avoid the system unstability after clearing CMOS, we recommend users to enter the main BIOS setting page to "Load Optimal De-faults" and then "Save Changes and Exit".

Install The Motherboard

Install the motherboard in a system chassis (case). The board is a Micro ATX size motherboard. You can install this motherboard in an ATX case. Make sure your case has an I/O cover plate matching the ports on this motherboard.

Install the motherboard in a case. Follow the case manufacturer's instructions to use the hardware and internal mounting points on the chassis.



Connect the power connector from the power supply to the **ATX_POWER** connector on the motherboard. **ATX12V** is a +12V connecotr for CPU Vcore power.

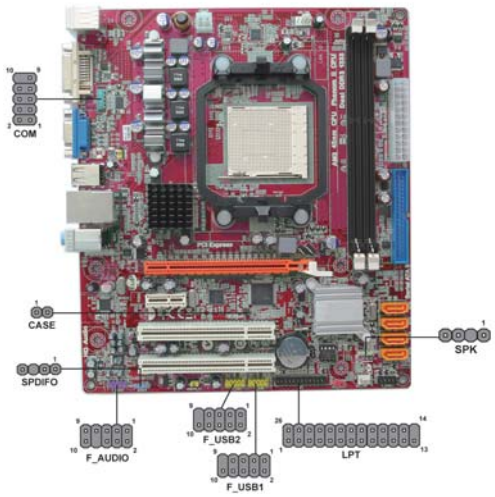
If there is a cooling fan installed in the system chassis, connect the cable from the cooling fan to the **SYS_FAN** fan power connector on the motherboard.

Connect the case switches and indicator LEDs to the **F_PANEL** header.

Pin	Signal	Pin	Signal
1	HD_LED_P(+)	2	FP PWR/SLP(+)
3	HD_LED_N(-)	4	FP PWR/SLP(-)
5	RESET_SW_N(-)	6	POWER_SW_P(+)
7	RESET_SW_P(+)	8	POWER_SW_N(-)
9	RSVD_DNU	10	KEY

Connecting Optional Devices

Refer to the following for information on connecting the motherboard's optional devices:



SPK: Speaker Header

Connect the cable from the PC speaker to the SPK header on the motherboard.

Pin	Signal
1	+5V
2	NC
3	GND
4	SPKR

F_AUDIO: Front Panel Audio Header

This header allows the user to install auxiliary front-oriented microphone and line-out ports for easier access.

Pin	Signal	Pin	Signal
1	AUD_MIC	2	AUD_GND
3	AUD_MIC_BIAS	4	AUD_VCC
5	AUD_FPOUT_R	6	AUD_RET_R
7	NC	8	KEY
9	AUD_FPOUT_L	10	AUD_RET_L

F_USB1~2: Front Panel USB Headers

The motherboard has USB ports installed on the rear edge I/O port array. Additionally, some computer cases have USB ports at the front of the case. If you have this kind of case, use auxiliary USB headers F_USB1~2 to connect the front-mounted ports to the motherboard.
Here is a list of USB pin assignments.

Pin	Signal	Pin	Signal
1	VERG_FP_USBPWR0	2	VERG_FP_USBPWR0
3	USB_FP_P0(-)	4	USB_FP_P1(-)
5	USB_FP_P0(+)	6	USB_FP_P1(+)
7	GROUND	8	GROUND
9	KEY	10	GROUND

1. Locate the F_USB1~2 headers on the motherboard.
2. Plug the bracket cable onto the F_USB1~2 headers.
3. Remove a slot cover from one of the expansion slots on the system chassis. Install an extension bracket in the opening. Secure the extension bracket to the chassis with a screw.

SPDIFO: SPDIF out header

This is an optional header that provides an S/PDIF (Sony/Philips Digital Interface) output to digital multimedia device through optical fiber or coaxial connector.

Pin	Signal
1	SPDIF
2	+5VA
3	Key
4	GND

LPT: Onboard parallel port header

This is a header that can ba used to connect to the printer, scanner or other devices.

Pin	Signal Name	Pin	Signal Name
1	STROBE	14	ALF
2	PD0	15	ERROR
3	PD1	16	INIT
4	PD2	17	SLCTIN
5	PD3	18	Ground
6	PD4	19	Ground
7	PD5	20	Ground
8	PD6	21	Ground
9	PD7	22	Ground
10	ACK	23	Ground
11	BUSK	24	Ground
12	PE	25	Ground
13	SLCT	26	Key

CASE: Chassis intrusion detect header

This detects if the chassis cover has been removed. This function needs a chassis equipped with instrusion detection switch and needs to be enabled in BIOS.

Pin 1-2	Function
Short	Chassis cover is removed
Open	Chassis cover is closed

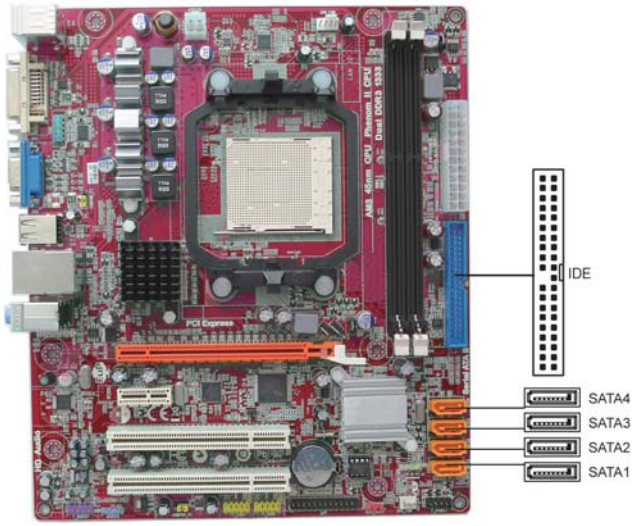
COM: Onboard serial port header

Connect a serial port extension bracket to this header to add a second serial port to your system.

Pin	Signal Name	Function
1	DCDB	Data Carrier Detect
2	SINB	Serial Input
3	SOUTB	UART B Serial Output
4	DTRB	UART B Data Terminal Ready
5	GND	Ground
6	DSRB	Data Set Ready
7	RTSB	RART B Request to Send
8	CTSB	Clear to Send
9	RI	Ring Indicator
10	Key	No pin

Install Other Devices

Install and connect any other devices in the system following the steps below.



IDE Devices

IDE devices include hard disk drives, high-density diskette drives, and CD-ROM or DVD-ROM drives, among others.

The mainboard ships with an IDE cable that can support one or two IDE devices. If you connect two devices to a single cable, you must configure one of the drives as Master and one of the drives as Slave. The documentation of the IDE device will tell you how to configure the device as a Master or Slave device. The Master device connects to the end of the cable.

Install the device(s) and connect power from the system power supply. Use the cable provided to connect the device(s) to the Primary IDE channel connector **IDE1** on the motherboard.

If you want to install more IDE devices, you can purchase a second IDE cable and connect one or two devices to the Secondary IDE channel connector **IDE2** on the motherboard. If you have two devices on the cable, one must be Master and one must be Slave.

Serial ATA Devices

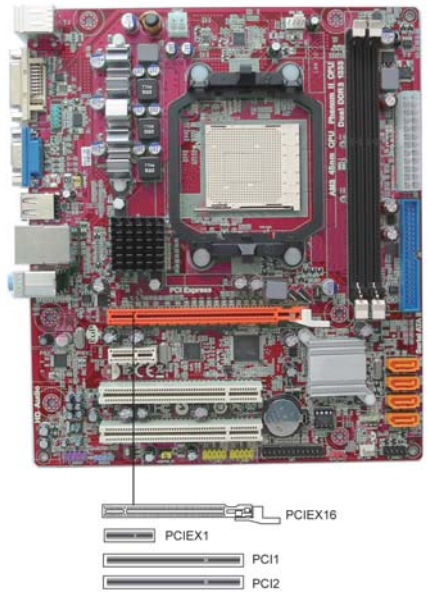
The **Serial ATA (Advanced Technology Attachment)** is the standard interface for the IDE hard drives, which is designed to overcome the design limitations while enabling the storage interface to scale with the growing media rate demands of PC platforms. It provides you a faster transfer rate of **1.5 Gb/s**. If you have installed a Serial ATA hard drive, you can connect the Serial ATA cables to the Serial ATA hard drive or the connector on the motherboard.

On the motherboard, locate the Serial ATA connectors **SATA1-2**, which support new Serial ATA devices for the highest data transfer rates, simpler disk drive cabling and easier PC assembly.

It eliminates limitations of the current Parallel ATA interface, but maintains register compatibility and software compatibility with Parallel ATA.

Expansion Slots

This motherboard has one PCI Express x16, one PCI Express x1 and two 32-bit PCI slots.



Follow the steps below to install an PCI Express x16/ PCI Express x1/CNR/PCI expansion card.

1. Locate the PCI Express x16, PCI Express x1, CNR or PCI slots on the mainboard.
2. Remove the blanking plate of the slot from the system chassis.
3. Install the edge connector of the expansion card into the slot. Ensure the edge connector is correctly seated in the slot.
4. Secure the metal bracket of the card to the system chassis with a screw.

PCI Express x16 Slot

You can install an external PCI Express graphics card that is fully compliant to the PCI Express Base Specification revsion 1.0a.

PCI Express x1 Slot

The two PCI Express x1 slots are fully compliant to the PCI Express Base Specification revision 1.0a as well.

PCI Slots

You can install the 32-bit PCI interface expansion cards in the slots.

Chapter 3 BIOS Setup Utility

Introduction

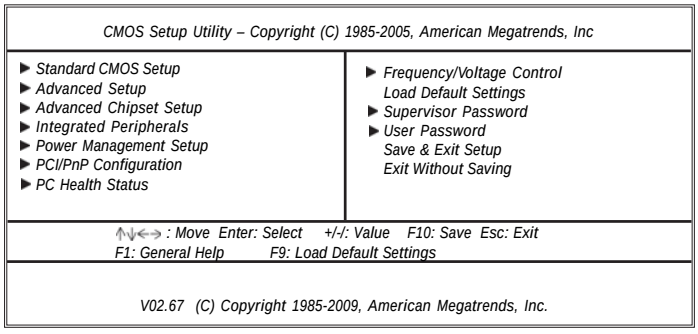
The BIOS Setup Utility records settings and information of your computer, such as date and time, the type of hardware installed, and various configuration settings. Your computer applies the information to initialize all the components when booting up and basic functions of coordination between system components.

If the Setup Utility configuration is incorrect, it may cause the system to malfunction. It can even stop your computer booting properly. If it happens, you can use the clear CMOS jumper to clear the CMOS memory which has stored the configuration information; or you can hold down the **Page Up** key while rebooting your computer. Holding down the **Page Up** key also clears the setup information.

You can run the setup utility and manually change the configuration. You might need to do this to configure some hardware installed in or connected to the motherboard, such as the CPU, system memory, disk drives, etc.

Running the Setup Utility

Every time you start your computer, a message appears on the screen before the operating system loading that prompts you to "*Hit <DEL>if you want to run SETUP*". Whenever you see this message, press the **Delete** key, and the Main menu page of the Setup Utility appears on your monitor.


CMOS Setup Utility – Copyright (C) 1985-2005, American Megatrends, Inc
▶ Standard CMOS Setup
▶ Advanced Setup
▶ Advanced Chipset Setup
▶ Integrated Peripherals
▶ Power Management Setup
▶ PCI/PnP Configuration
▶ PC Health Status
▶ Frequency/Voltage Control
Load Default Settings
▶ Supervisor Password
▶ User Password
Save & Exit Setup
Exit Without Saving
↑↓←→ : Move Enter: Select +/-/: Value F10: Save Esc: Exit
F1: General Help F9: Load Default Settings
V02.67 (C) Copyright 1985-2009, American Megatrends, Inc.

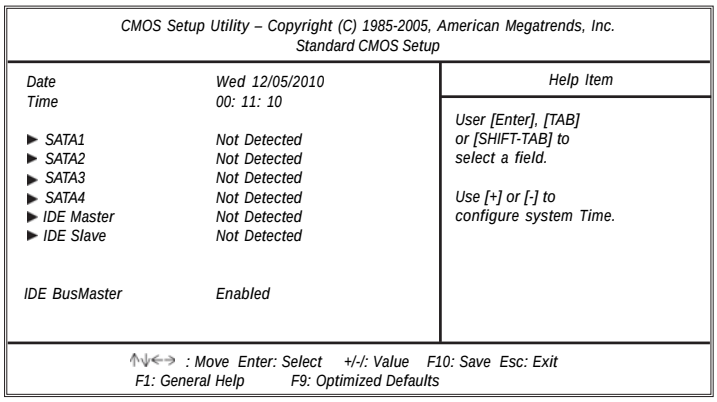
You can use cursor arrow keys to highlight anyone of options on the main menu page. Press **Enter** to select the highlighted option. Press the **Escape** key to leave the setup utility. Press +/-/ to modify the selected field's values.

Some options on the main menu page lead to tables of items with installed values that you can use cursor arrow keys to highlight one item, and press **PgUp** and **PgDn** keys to cycle through alternative values of that item. The other options on the main menu page lead to dialog boxes requiring your answer OK or Cancel by selecting the **[OK]** or **[Cancel]** key.

If you have already changed the setup utility, press **F10** to save those changes and exit the utility. Press **F1** to display a screen describing all key functions. Press **F9** to load optimtimal settings.

Standard CMOS Setup Page

This page displays a table of items defining basic information of your system.



Date & Time

These items set up system date and time.

SATA1~4/IDE Master/IDE Slave

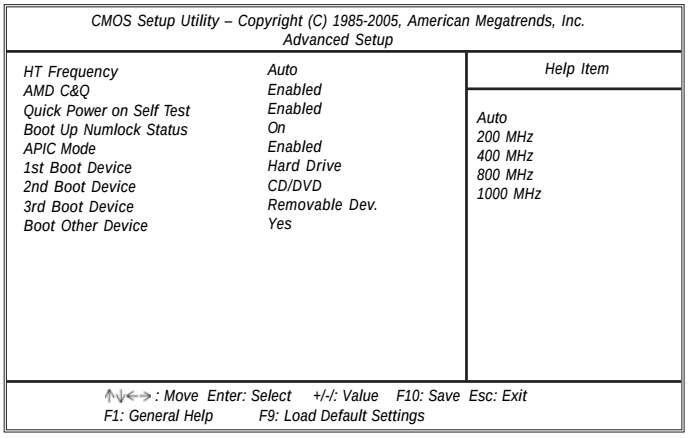
Use these items to configure devices connected to the Primary/Secondary IDE channels. To configure an IDE hard disk drive, choose *Auto*. If the *Auto* setting fails to find a hard disk drive, set it to *User*, and then fill in the hard disk characteristics (Size, Cyls, etc.) manually. If you have a CD-ROM drive, select the setting *CDROM*. If you have an ATAPI device with removable media (e.g. a ZIP drive or an LS-120), select *Floptical*.

IDE Bus Master

This item enables or disables the DMA under DOS mode. We recommend you to leave this item at the default value.

Advanced Setup Page

This page sets up more advanced information about your system. Handle this page with caution. Any changes can affect the operation of your computer.



HT Frequency (Auto)

This item enables users to manually set up the HyperTransport frequency, ranging from Auto, 1x, to 5x.

AMD C&Q (Enabled)

This item helps the system to lower the frequency when CPU idles. When the frequency decreases, the temperature will drop automatically as well.

Quick Power on Self Test (Enabled)

Enable this item to shorten the power on testing (POST) and have your system start up faster. You might like to enable this item after you are confident that your system hardware is operating smoothly.

BootUp Num-Lock Status (On)

This item defines if the keyboard Num Lock key is active when your system is started.

APIC Mode (Enabled)

This item allows you to enable or disable the APCI (Advanced Programmable Interrupt Controller) mode. APIC provides symmetric multi-processing (SMP) for systems, allowing support for up to 60 processors.

1st Boot Device/2nd Boot Device/3rd Boot Device

Use these items to determine the device order the computer uses to look for an operating system to load at start-up time.

Try Other Boot Device

If you enable this item, the system will also search for other boot devices if it fails to find an operating system from the first two locations.

Boot to OS/2 > 64MB

Enable this item if you are booting the OS/2 operating system and you have more than 64MB of system memory installed.

Aperture Size

This item defines the size of aperture if you use a graphic adapter.

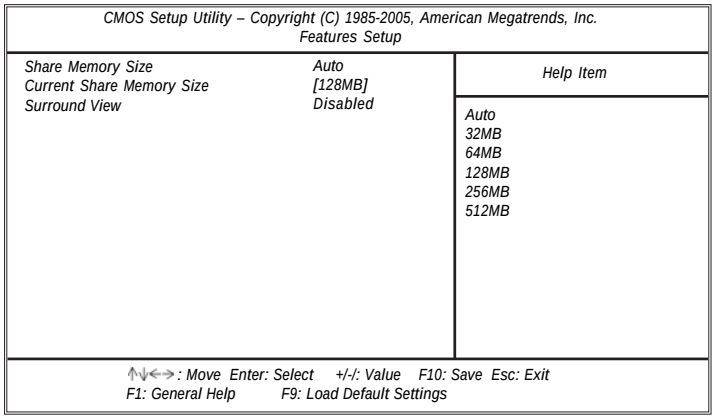
Auto detect DIMM/PCI Clock

Boot Other Device (Yes)

When enabled, the system searches all other possible locations for an operating system if it fails to find one in the devices specified under the First, Second and Third boot devices.

Advanced Chipset Setup Page

This page sets up some parameters for peripheral devices connected to the system.



Share Memory Size (Auto)

This item lets you allocate a portion of the main memory for the onboard VGA display application.

Current Share Memory Size (128MB)

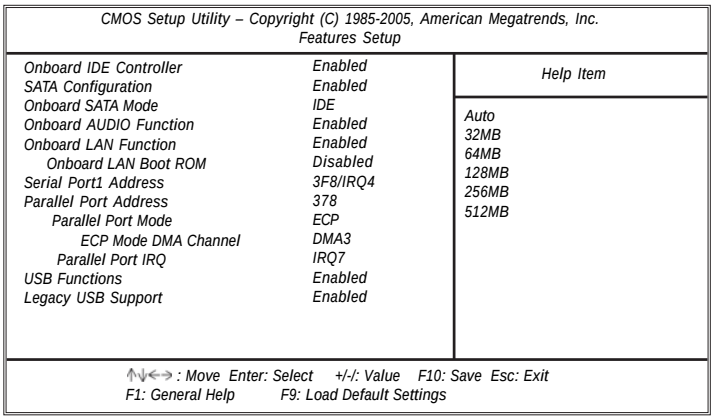
This item is used to show the current Share Memory Size.

Surround View (Disabled)

ATI Surround view function only support when using ATI PCIE graphics card.

Integrated Peripherals Page

This page sets up some parameters for peripheral devices connected to the system.



Onboard IDE Controller (Enabled)

Use this item to enable or disable the onboard IDE interface.

SATA Configuration (Enabled)

Use this item to show the Serial ATA Configuration options: Disabled, Compatible, Enhanced.

Onboard SATA Mode (IDE)

Use this item to choose the onboard SATA mode.

Onboard AUDIO Function (Enabled)

Use this item to enable or disable the onboard Audio function.

Onboard LAN Function (Enabled)

Use this item to enable or disable the onboard LAN function.

Onboard LAN Boot ROM (Disabled)

Use this item to enable or disable the booting from the onboard LAN or a network add-in card with a remote boot ROM installed.

Serial Port1 Address (3F8/IRQ4)

Use this item to enable or disable the onboard COM1 serial port, and to assign a port address.

Parallel Port Address (378)

Use this item to enable or disable the onboard Parallel port, and to assign a port address.

Parallel Port Mode (ECP)

Use this item to select the parallel port mode. You can select Normal (Standard Parallel Port), ECP (Extended Capabilities Port), EPP (Enhanced Parallel Port), or BPP (Bi-Directional Parallel Port).

ECP Mode DMA Channel (DMA3)

Use this item to assign a DMA channel to the parallel port.

Parallel Port IRQ (IRQ7)

Use this item to assign IRQ to the parallel port.

USB Functions (Enabled)

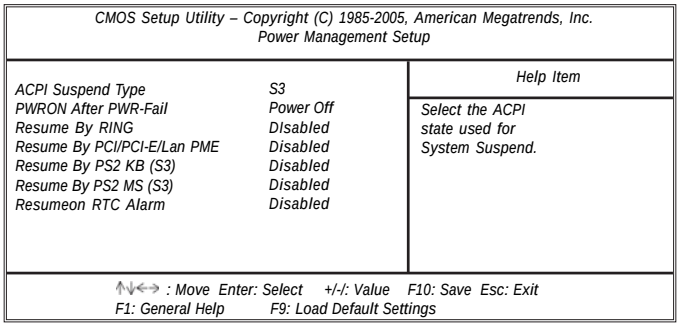
Use this item to enable or disable the USB function.

Legacy USB Support (Enabled)

Use this item to enable or disable support for legacy USB devices. Setting to Auto allows the system to detect the presence of USB device at startup. If detected, the USB controller legacy mode is enabled. If no USB device is detected, the legacy USB support is disabled.

Power Management Setup Page

This page sets some parameters for system power management operation.


CMOS Setup Utility – Copyright (C) 1985-2005, American Megatrends, Inc.
Power Management Setup
Help Item
ACPI Suspend Type S3
PWRON After PWR-Fail Power Off
Resume By RING DIsabled
Resume By PCI/PCI-E/Lan PME Disabled
Resume By PS2 KB (S3) Disabled
Resume By PS2 MS (S3) Disabled
Resumeon RTC Alarm Disabled
Select the ACPI state used for System Suspend.
: Move Enter: Select +/-/: Value F10: Save Esc: Exit
F1: General Help F9: Load Default Settings

ACPI Suspend Type (S3)

Use this item to define how your system suspends. In the default, S3, the suspend mode is a suspend to RAM, i.e, the system shuts down with the exception of a refresh current to the system memory.

PWRON After PWR-Fail (Power Off)

This item enables your computer to automatically restart or return to its operating status.

Resume By RING

The system can be turned off with a software command. If you enable this item, the system can automatically resume if there is an incoming call on the Modem. You must use an ATX power supply in order to use this feature.

Resume By PCI/PCI-E/Lan PME

The system can be turned off with a software command. If you enable this item, the system can automatically resume if there is an incoming call on the PCI Modem or PCI LAN card. You must use an ATX power supply in order to use this feature. Use this item to do wake-up action if inserting the PCI card.

Resume By USB (S3)

This item allows you to enable/disable the USB device wakeup function from S3 mode.

Resume By PS2 KB (S3)

This item enables or disables you to allow keyboard activity to awaken the system from power saving mode.

Resume By PS2 MS (S3)

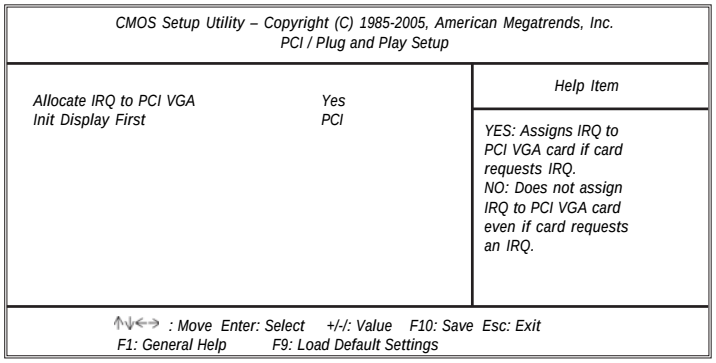
The system can be turned off with a software command. If you enable this item, system can automatically resume by pressing any keys or power keys on the keyboard, or typing in the password. You must use an ATX power supply in order to use this feature.

Resume on RTC Alarm

The system can be turned off with a software command. If you enable this item, the system can automatically resume at a fixed time based on the system's RTC (realtime clock). Use the items below this one to set the date and time of the wake-up alarm. You must use an ATX power supply in order to use this feature.

PCI / Plug Setup Page

This page sets up some parameters for devices installed on the PCI bus and those utilizing the system plug and play capability.


CMOS Setup Utility – Copyright (C) 1985-2005, American Megatrends, Inc.
PCI / Plug and Play Setup
Help Item
Allocate IRQ to PCI VGA
Yes
Init Display First
PCI
YES: Assigns IRQ to PCI VGA card if card requests IRQ.
NO: Does not assign IRQ to PCI VGA card even if card requests an IRQ.
: Move Enter: Select +/-/: Value F10: Save Esc: Exit
F1: General Help F9: Load Default Settings

Allocate IRQ to PCI VGA

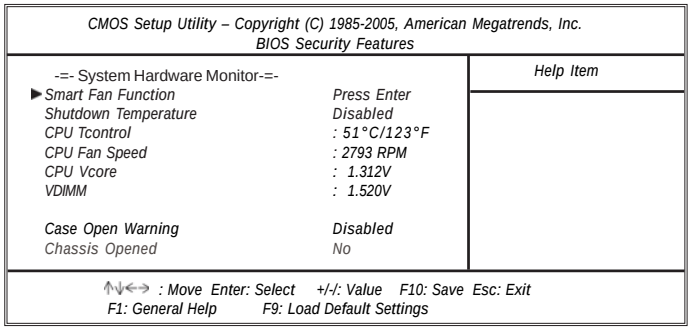
If this item is enabled, an IRQ will be assigned to the PCI VGA graphics system. You set this value to No to free up an IRQ.

Init Display First

Use this item to select which graphics controller to use as the primary boot devices.

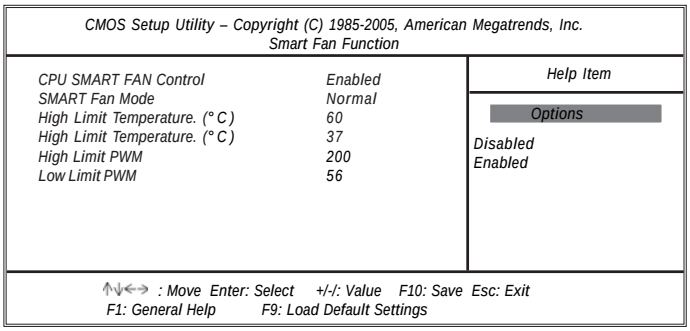
PC Health Status Page

On motherboards support hardware monitoring, this item lets you monitor the parameters for critical voltages, temperatures and fan speeds.



▶ Smart Fan Function

This page sets up some parameters for devices installed on the PCI bus and those utilizing the system plug and play capability.



CPU SMART FAN Control

This item allows you to enable or disable the control of the CPU fan speed by changing the fan voltage.

SMART Fan Mode

This item allows you to select the fan mode (Normal, Quiet, Silent, or Manual) for a better operation environment. If you choose Normal mode, the fan speed will be auto adjusted depending on the CPU temperature. If you choose Quite mode, the fan speed will be auto minimized for quiet environment. If you choose Silent mode, the fan speed will be auto restricted to make system more quietly. If you choose Manual mode, the fan speed will be adjust depending on users' parameters.

CMOS Setup Utility - Copyright (C) 1985-2005, American Megatrends, Inc.
Smart Fan Function

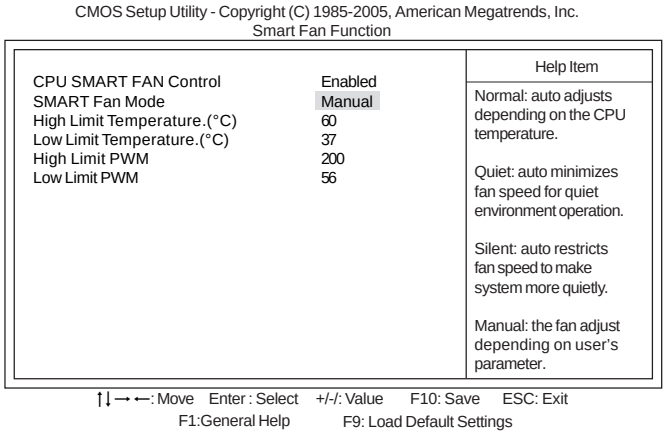
		Help Item
CPU SMART FAN Control	Enabled	Normal: auto adjusts depending on the CPU temperature. Quiet: auto minimizes fan speed for quiet environment operation. Silent: auto restricts fan speed to make system more quietly. Manual: the fan adjust depending on user's parameter.
SMART Fan Mode	Quiet	
High Limit Temperature.(°C)	60	
Low Limit Temperature.(°C)	37	
High Limit PWM	200	
Low Limit PWM	56	

↑↓→←: Move Enter : Select +/-/: Value F10: Save ESC: Exit
F1:General Help F9: Load Default Settings

CMOS Setup Utility - Copyright (C) 1985-2005, American Megatrends, Inc.
Smart Fan Function

		Help Item
CPU SMART FAN Control	Enabled	Normal: auto adjusts depending on the CPU temperature. Quiet: auto minimizes fan speed for quiet environment operation. Silent: auto restricts fan speed to make system more quietly. Manual: the fan adjust depending on user's parameter.
SMART Fan Mode	Silent	
High Limit Temperature.(°C)	60	
Low Limit Temperature.(°C)	37	
High Limit PWM	200	
Low Limit PWM	56	

↑↓→←: Move Enter : Select +/-/: Value F10: Save ESC: Exit
F1:General Help F9: Load Default Settings


CMOS Setup Utility - Copyright (C) 1985-2005, American Megatrends, Inc.
Smart Fan Function
CPU SMART FAN Control
Enabled
SMART Fan Mode
Manual
High Limit Temperature.(°C)
60
Low Limit Temperature.(°C)
37
High Limit PWM
200
Low Limit PWM
56
Help Item
Normal: auto adjusts depending on the CPU temperature.
Quiet: auto minimizes fan speed for quiet environment operation.
Silent: auto restricts fan speed to make system more quietly.
Manual: the fan adjust depending on user's parameter.
↑↓→←: Move Enter : Select +/-/: Value F10: Save ESC: Exit
F1:General Help F9: Load Default Settings

Shutdown Temperature

Enable you to set the maximum temperature the system can reach before powering down.

System Component Characteristics

These items display the monitoring of the overall inboard hardware health events, such as System temperature & CPU Tcontrol, CPU & DIMM voltage, CPU & system fan speed,...etc.

- CPU Tcontrol
- CPU FAN Speed
- CPU Vcore
- VDIMM

Case Open Warning (Disabled)

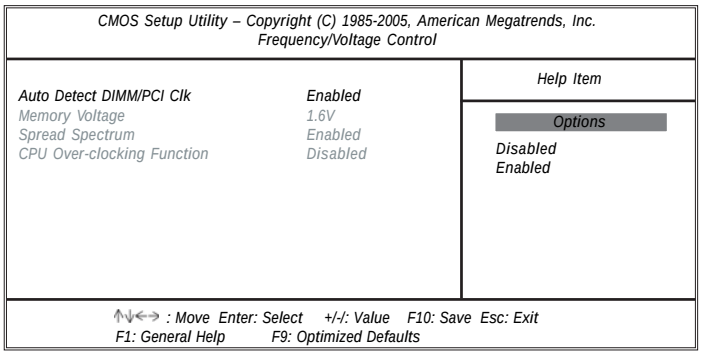
This item enables or disables the warning if the case is opened up, and the item below indicates the current status of the case.

Chassis Opened (No)

This item indicates whether the case has been opened.

Frequency/Voltage Control Page

This page sets up some parameters for the hardware monitoring function of this motherboard.



Auto Detect DIMM/PCI Clk

When this item is enabled, BIOS will disable the clock signal of free DIMM/PCI slots.

Memory Voltage

This item allows users to adjust the DDR3 memory voltage.

Spread Spectrum

If you enable spread spectrum, it can significantly reduce the EMI (Electro-Magnetic Interference) generated by the system.

CPU Over-clocking Function

This item decides the CPU over-clocking function/frequency installed in your system.

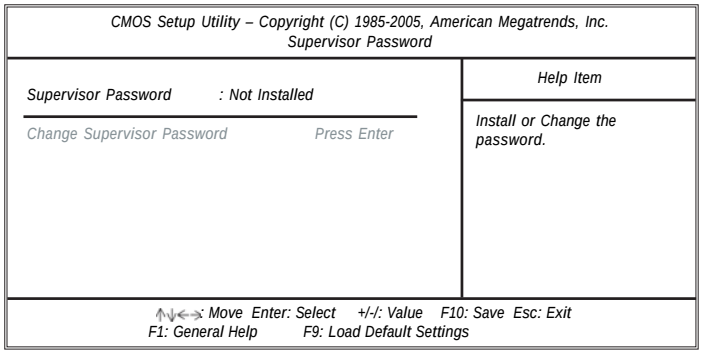
Load Default Settings

This option opens a dialog box to ask if you are sure to install optimized defaults or not. You select [OK], and then <Enter>, the Setup Utility loads all default values; or select [Cancel], and then <Enter>, the Setup Utility does not load default values.

Note: It is highly recommend that users enter this option to load optimal default values for accessing the best performance.

Supervisor Password Page

This page helps you install or change a password.


CMOS Setup Utility – Copyright (C) 1985-2005, American Megatrends, Inc.
Supervisor Password
Supervisor Password : Not Installed
Change Supervisor Password Press Enter
Help Item
Install or Change the password.
↑↓←→: Move Enter: Select +/-/: Value F10: Save Esc: Exit
F1: General Help F9: Load Default Settings

Supervisor Password

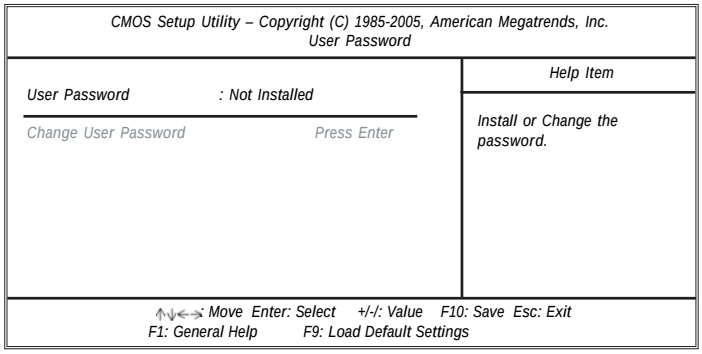
This item indicates whether a supervisor password has been set. If the password has been installed, *Installed* displays. If not, *Not Installed* displays.

Change Supervisor Password

You can select this option and press <Enter> to access the sub menu. You can use the sub menu to change the supervisor password.

User Password Page

This page helps you install or change a password.


CMOS Setup Utility – Copyright (C) 1985-2005, American Megatrends, Inc.
User Password
User Password : Not Installed
Change User Password Press Enter
Help Item
Install or Change the password.
↑↓←→: Move Enter: Select +/-/: Value F10: Save Esc: Exit
F1: General Help F9: Load Default Settings

User Password

This item indicates whether an user password has been set. If the password has been installed, *Installed* displays. If not, *Not Installed* displays.

Change User Password

You can select this option and press <Enter> to access the sub menu. You can use the sub menu to change the user password.

Save & Exit Setup

Highlight this item and press <Enter> to save the changes that you have made in the Setup Utility configuration. When the Save Changes and Exit dialog box appears, select [OK] to save and exit, or [Cancel] to return to the main menu.

Exit Without Saving

Highlight this item and press <Enter> to discard any changes that you have made in the Setup Utility and exit the Setup Utility. When the Discard Changes and Exit dialog box appears, select [OK] to discard changes and exit, or [Cancel] to return to the main menu.

Note: If you have made settings that you do not want to save, use the "Discard Changes and Exit" item and select [OK] to discard any changes you have made.

Chapter 4 Software & Applications

Introduction

This chapter describes the contents of the support DVD-ROM/CD-ROM that comes with the motherboard package.

The support DVD-ROM/CD-ROM contains all useful software, necessary drivers and utility programs to properly run our products. More program information is available in a README file, located in the same directory as the software.

To run the support disk, simply insert the disk into your DVD-ROM/CD-ROM drive. An Auto Setup screen automatically pops out, and then you can go on the auto-installing or manual installation depending on your operating system.

If your operating system is Windows XP/7, it will automatically install all the drivers and utilities for your motherboard.

Installing Support Software

1 Insert the support DVD-ROM/CD-ROM disk in the DVD-ROM/CD-ROM drive.

2 When you insert the DVD-ROM/CD-ROM disk in the system DVD-ROM/CD-ROM drive, the disk automatically displays an Auto Setup screen.

3 The screen displays three buttons of **Setup**, **Browse CD** and **Exit** on the right side, and three others **Drivers**, **Utilities** and **Information** at the bottom. Please see the following illustration.

The **Setup** button runs the software auto-installing program as explained in next

section.

The **Browse CD** button is a standard Windows command that you can check the contents of the disc with the Windows file browsing interface.

The **Exit** button closes the Auto Setup window. To run the program again, reinsert the DVD-ROM/CD-ROM disk in the drive; or click the DVD-ROM/CD-ROM driver from the Windows Explorer, and click the Setup icon.

The **Utilities** button brings up a software menu. It shows the bundled software that this mainboard supports.

The **Information** brings you to the Install Path where you can find out path names of software driver.

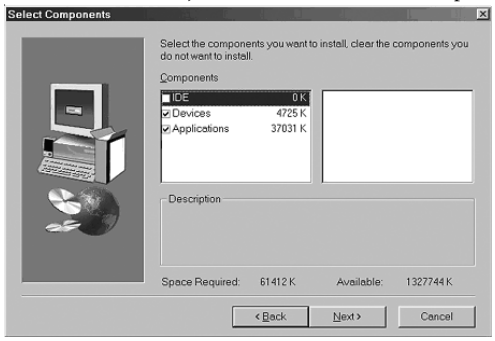
Auto-Installing under Windows XP/7

If you are under Windows XP/7, please click the **Setup** button to run the software auto-installing program while the Auto Setup screen pops out after inserting the support DVD-ROM/CD-ROM:

1 The installation program loads and displays the following screen. Click the **Next** button.

Welcome
Welcome to the MainBoard Setup program. This program will install MainBoard on your computer.
It is strongly recommended that you exit all Windows programs before running this Setup program.
Click Cancel to quit Setup and then close any programs you have running. Click Next to continue with the Setup program.
WARNING: This program is protected by copyright law and international treaties.
Unauthorized reproduction or distribution of this program, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under law.
Next >
Cancel

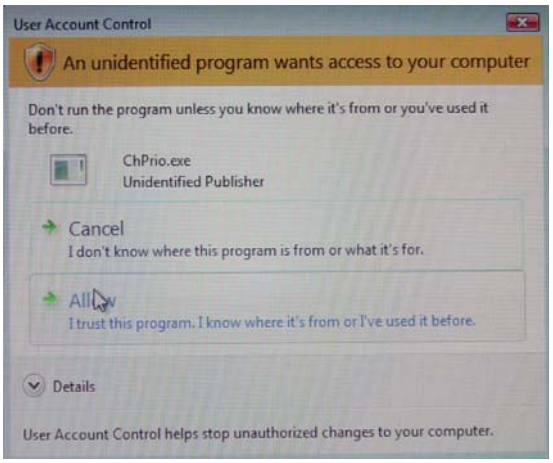
2 Select the items that you want to setup by clicking on it (the default options are recommended). Click the **Next** button to proceed.



3 The support software will automatically install.

Once any of the installation procedures start, software is automatically installed in sequence. You need to follow the onscreen instructions, confirm commands and allow the computer to restart as few times as needed to complete installing whatever software you selected. When the process is finished, all the support software will be installed and start working.

Windows Vista/7 will appear below UAC (User Account Control) message after the system restart. You must select "Allow" to install the next driver. Continue this process to complete the drivers installation.


User Account Control
An unidentified program wants access to your computer
Don't run the program unless you know where it's from or you've used it before.
ChPrio.exe
Unidentified Publisher
Cancel
I don't know where this program is from or what it's for.
Allow
I trust this program. I know where it's from or I've used it before.
Details
User Account Control helps stop unauthorized changes to your computer.

Bundled Software Installation

All bundled software available on the DVD-ROM/CD-ROM is for users' convenience. You can install bundled software as follows:

1 Click the **Utilities** button while the Auto Setup screen pops out after inserting the support DVD-ROM/CD-ROM.
2 A software menu appears. Click the software you want to install.
3 Follow onscreen instructions to install the software program step by step until finished.

Chapter 5 Setting Up AMD SB700 RAID Configuration

Setting Up a bootable RAID Array

This section explains how to configure a bootable AMD RAID array.

Setting Up the BIOS

1 Start your computer, then press Delete to enter the BIOS setup.

The BIOS CMOS Setup Utility screen appears.

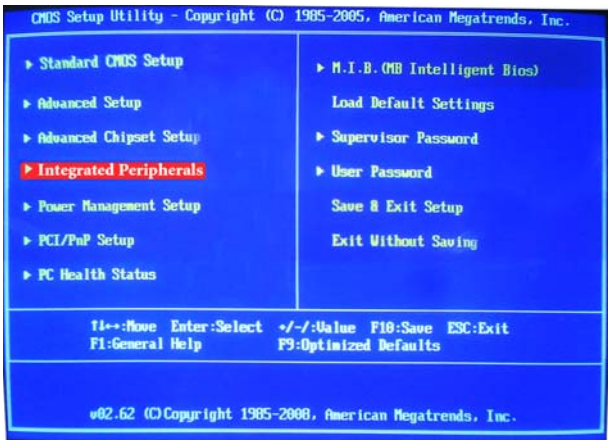


Figure 1.1 BIOS CMOS Setup Utility Main Screen

2 Use the arrow keys to select Integrated Peripherals (see Figure 1.1), then press Enter.

The Integrated Peripherals screen (or a screen similar to it) appears.

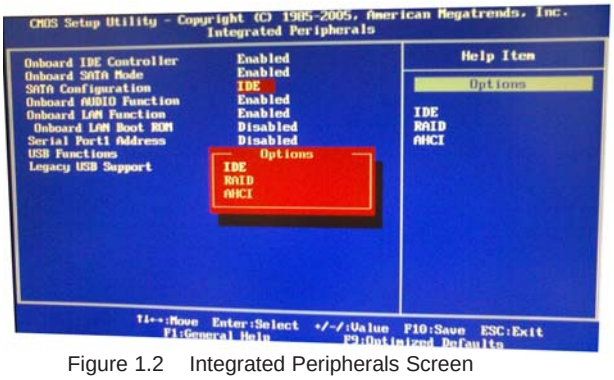


Figure 1.2 Integrated Peripherals Screen

3 Use the arrow keys to select the SATA Configuration (see Figure 1.2) and globally set SATA Configuration to RAID.

4 Press F10 to save the configuration and exit.
The PC reboots.

5 Enter the RAID BIOS Setup by pressing Ctrl-F when prompted, and proceed to set up the AMD RAID BIOS as described in the next section.

Configuring the AMD RAID BIOS

The AMD RAID BIOS set up lets you choose the RAID type and which hard drives you want to make part of the array.

Entering the RAID BIOS Setup:

1 Wait until you see the RAID software prompting you to press Ctrl-F.

The RAID prompt appears as part of the system POST and boot process prior to loading of the OS. You have a few seconds to press Ctrl-F before the screen disappears.

2 Press Ctrl-F.

The Main Menu screen appears (Figure 1.3).

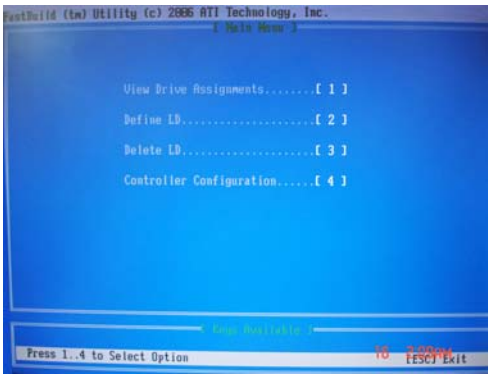

FastBuild (tm) Utility (c) 2006 ATI Technology, Inc.
[Main Menu]
View Drive Assignments.....[1]
Define LD.....[2]
Delete LD.....[3]
Controller Configuration.....[4]
[Keys Available]
Press 1..4 to Select Option
[ESC] Exit

Figure 1.3 Main Menu

3 Select [2], then select LD 1 in the following page.

The Define LD Menu screen appears (Figure 1.4).

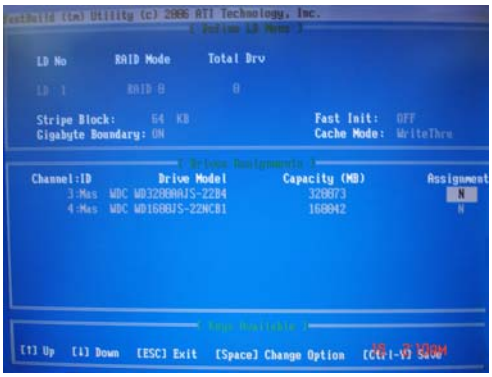


Figure 1.4 Define LD Menu

Using the Define a New Array Screen

If necessary, press the tab key to move from field to field until the appropriate field is highlighted.

- **Selecting the RAID Mode**

  By default, this is set to Mirroring. To change to a different RAID mode, press the spacebar until the mode that you want appears in the RAID Mode box—RAID0/1/10/JBOD.

  Note: Not all RAID levels are supported on all platforms.

- **Selecting the Stripe Block Size**

  Stripe block size is given in kilobytes, and affects how data is arranged on the disk. It is recommended to leave this value at the default Optimal, which is 64KB, but the values can be 64 KB and 128 KB. When choose RAID 1, the Stripe block size is unchangable.

Assigning the Disks

1. Select the Assignment to Y to designate a free disk to be used as a RAID array disk.

Figure 1.5 illustrates the Define a New Array screen after two disks have been assigned as RAID 0 array disks.

Figure 1.5 FastBuild Utility—Array Disks Assigned

2. Press Ctrl-Y to save the configuration and exit.

The Define LD Menu screen appears (Figure 1.6).

Figure 1.6 Define LD Menu

3. Press ESC to exit.

   The Main Menu screen appears (Figure 1.7).

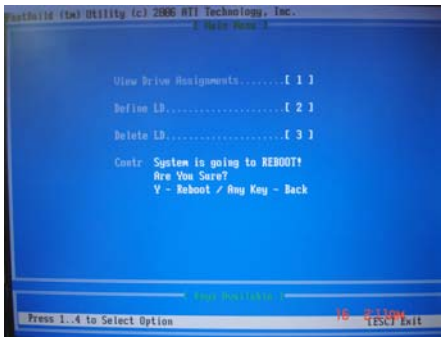

View Drive Assignments.....[1]
Define LD.....[2]
Delete LD.....[3]
Confir System is going to REBOOT!
Are You Sure?
Y - Reboot / Any Key - Back
Press 1..4 to Select Option
[ESC] Exit

Figure 1.7 Main Menu

4 Press Y to reboot.

The following screen appears (Figure 1.8).

ID MODE SIZE TRACK-MAPPING STATUS
1 2+0 RAID 0 318000M 38661/255/63 Functional
2 ASUS DVD-E818AT
Press <Ctrl-F> to enter FastBuild (tm) Utility...

Figure 1.8

Installing the RAID Drivers

Your system may come with a Windows install CD that already includes AMD RAID drivers. If so, then this section is not relevant.

If that is not the case (or you are trying to install a new version of Windows), then you will need an AMD RAID driver F6 install floppy. Check to see if one came with your system. If not, you can create one by downloading the appropriate driver package and following the steps in this section.

1 Copy all files in "...\RAID\ATI\SB700\Floppy\Win3264" to a floppy disk.

2 After you complete the RAID BIOS setup, boot from the Windows CD.

The Windows Setup program starts.

Figure 1.9

3 Press F6 and wait a few moments for the Windows Setup screen to appear.

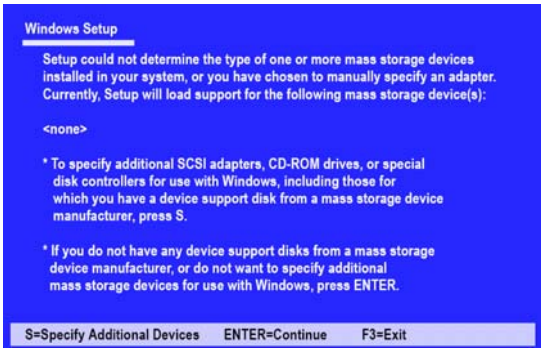

Windows Setup
Setup could not determine the type of one or more mass storage devices installed in your system, or you have chosen to manually specify an adapter. Currently, Setup will load support for the following mass storage device(s):
<none>
* To specify additional SCSI adapters, CD-ROM drives, or special disk controllers for use with Windows, including those for which you have a device support disk from a mass storage device manufacturer, press S.
* If you do not have any device support disks from a mass storage device manufacturer, or do not want to specify additional mass storage devices for use with Windows, press ENTER.
S=Specify Additional Devices
ENTER=Continue
F3=Exit

Figure 1.10 Windows Setup—Specify Devices

4 Specify the AMD drivers.

a Insert the floppy that has the RAID driver, press S, then press Enter.

The following Windows Setup screen appears:

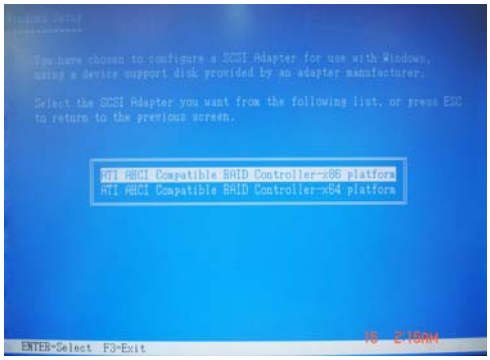

You have chosen to configure a SCSI Adapter for use with Windows,
using a device support disk provided by an adapter manufacturer.
Select the SCSI Adapter you want from the following list, or press ESC
to return to the previous screen.
ATI AHCI Compatible RAID Controller-x86 platform
ATI AHCI Compatible RAID Controller-x64 platform
ENTER=Select F3=Exit

Figure 1.11 Windows Setup—Selected SCSI Adapter

b Select "ATI AHCI Compatible RAID Controller-x86 platform" and press Enter for 32-bit OS or Select "ATI AHCI Compatible RAID Controller-x64 platform" and press Enter for 64-bit OS.

The following Windows Setup screen appears listing both drivers:

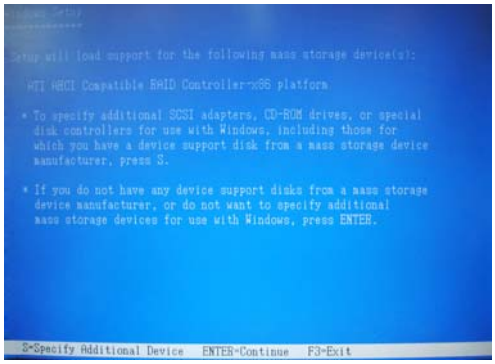

Setup will load support for the following mass storage device(s):
ATI AHCI Compatible RAID Controller-x86 platform
* To specify additional SCSI adapters, CD-ROM drives, or special
disk controllers for use with Windows, including those for
which you have a device support disk from a mass storage device
manufacturer, press S.
* If you do not have any device support disks from a mass storage
device manufacturer, or do not want to specify additional
mass storage devices for use with Windows, press ENTER.
S=Specify Additional Device ENTER=Continue F3=Exit

Figure 1.12 Windows Setup—AMD drives listed

5 Press Enter to continue with Windows XP Installation.

Be sure to leave the floppy disk inserted in the floppy drive until the blue screen portion of Windows XP installation is completed, then take out the floppy.

6 Follow the instructions on how to install Windows XP.

After Windows XP is completely installed, it is recommended that you install the ForceWare software in order to access the FastBuild RAID Management tool.

Note: Each time you add a new hard drive to a RAID array, the RAID driver will have to be installed under Windows once for that hard drive. After that, the driver will not have to be installed.

Chapter 6 Trouble Shooting Tips

Start up problems during assembly

After assembling the PC for the first time you may experience some start up problems. Before calling for technical support or returning for warranty, this chapter may help to address some of the common questions using some basic troubleshooting tips.

a) System does not power up and the fans are not running.

1.Disassemble the PC to remove the VGA adaptor card, DDR memory, LAN, USB and other peripherals including keyboard and mouse. Leave only the motherboard, CPU with CPU cooler and power supply connected. Turn on again to see if the CPU and power supply fans are running.

2. Make sure to remove any unused screws or other metal objects such as screwdrivers from the inside PC case. This is to prevent damage from short circuit.

3. Check the CPU FAN connector is connected to the motherboard.

4. For Intel platforms check the pins on the CPU socket for damage or bent. A bent pin may cause failure to boot and sometimes permanent damage from short circuit.

5. Check the 12V power connector is connected to the motherboard.

6. Check that the 12V power & ATX connectors are fully inserted into the motherboard connectors. Make sure the latches of the cable and connector are locked into place.

b) Power is on, fans are running but there is no display

1. Make sure the monitor is turned on and the monitor cable is properly connected to the PC.
2. Check the VGA adapter card (if applicable) is inserted properly.
3. Listen for beep sounds. If you are using internal PC speaker make sure it is connected.
   a. continuous 3 short beeps : memory not detected
   b. 1 long beep and 8 short beeps : VGA not detected

c) The PC suddenly shuts down while booting up.

1. The CPU may experience overheating so it will shutdown to protect itself. Ensure the CPU fan is working properly.
2. From the BIOS setting, try to disable the Smartfan function to let the fan run at default speed. Doing a Load Optimised Default will also disable the Smartfan.

Start up problems after prolong use

After a prolong period of use your PC may experience start up problems again. This may be caused by breakdown of devices connected to the motherboard such as HDD, CPU fan, etc. The following tips may help to revive the PC or identify the cause of failure.

1. Clear the CMOS values using the CLR_CMOS jumper. Refer to CLR_CMOS jumper in Chapter 2 for Checking Jumper Settings in this user manual. When completed, follow up with a Load Optimised Default in the BIOS setup.

2. Check the CPU cooler fan for dust. Long term accumulation of dust will reduce its effectiveness to cool the processor. Clean the cooler or replace a new one if necessary.

3. Check that the 12V power & ATX connectors are fully inserted into the motherboard connectors. Make sure the latches of the cable and connector are locked into place.

4. Remove the hard drive, optical drive or DDR memory to determine which of these component may be at fault.

Maintenance and care tips

Your computer, like any electrical appliance, requires proper care and maintenance. Here are some basic PC care tips to help prolong the life of the motherboard and keep it running as best as it can.

1. Keep your computer in a well ventilated area. Leave some space between the PC and the wall for sufficient airflow.
2. Keep your computer in a cool dry place. Avoid dusty areas, direct sunlight and areas of high moisture content.

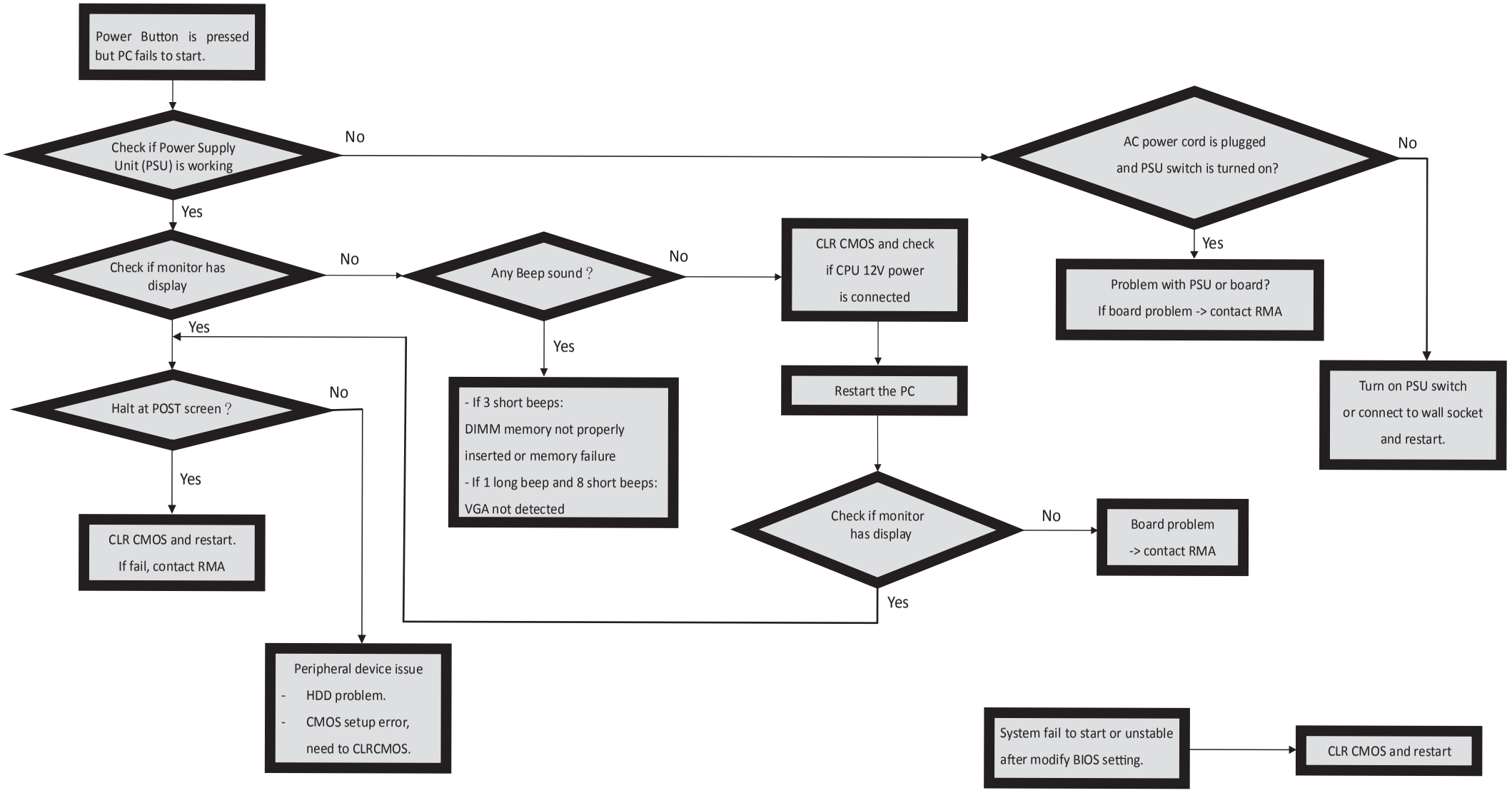
3. Routinely clean the CPU cooler fan to remove dust and hair.

4. In places of hot and humid weather you should turn on your computer once every other week to circulate the air and prevent damage from humidity.

5. Add more memory to your computer if possible. This not only speeds up the system but also reduces the loading of your hard drive to prolong its life span.

6. If possible, ensure the power cord has an earth ground pin directly from the wall outlet. This will reduce voltage fluctuation that may damage sensitive devices.

Basic Troubleshooting Flowchart


Power Button is pressed but PC fails to start.
Check if Power Supply Unit (PSU) is working
No
AC power cord is plugged and PSU switch is turned on?
No
Yes
Problem with PSU or board? If board problem -> contact RMA
Turn on PSU switch or connect to wall socket and restart.
Yes
Check if monitor has display
No
Any Beep sound ?
No
CLR CMOS and check if CPU 12V power is connected
Yes
- If 3 short beeps: DIMM memory not properly inserted or memory failure
- If 1 long beep and 8 short beeps: VGA not detected
Yes
Restart the PC
Halt at POST screen ?
No
Yes
CLR CMOS and restart. If fail, contact RMA
Check if monitor has display
No
Board problem -> contact RMA
Yes
Peripheral device issue
- HDD problem.
- CMOS setup error, need to CLRCMOS.
System fail to start or unstable after modify BIOS setting.
CLR CMOS and restart